

## ROOFINGPROJECTS-COM

### SHINGLE ROOF REPLACEMENT SPECIFICATION

Shaws # 1219 - 8 Washington St., Middlebury VT

Roof Sections: F & G

#### SECTION 07310 ASPHALT SHINGLE ROOFING

##### PART I GENERAL

###### 1.01 SECTION INCLUDES

- A Asphalt roofing shingles.
- B Leak barrier and roof deck protection.
- C Metal flashing associated with shingle roofing.
- D Replacement of existing gutter and downspout system w/ new 6" x 6" box gutter with 4" x 4" downspouts to match existing locations and configuration.

###### 1.02 REFERENCES

- A American Society for Testing and Materials (ASTM) - Annual Book of ASTM Standards
  - 1. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - 2. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
  - 3. ASTM D 3018 - Standard Specification for Class A Asphalt Shingles Surfaced with Mineral Granules.
  - 4. ASTM D 3161 - Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method).
  - 5. ASTM D 3462 – Standard Specification for Asphalt Shingles Made From Glass Felt and Surfaced with Mineral Granules.
  - 6. ASTM D 4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free.
  - 7. ASTM D 7158 - Standard Test Method for Wind-Resistance of Sealed Asphalt Shingles (Uplift Force/Uplift Resistance Method).
  - 8. AC438-1011-R1 – New Acceptance Criteria for Alternative Asphalt Roofing Shingles
- B Roofing Systems and Materials Guide (TFWZ.R21)
  - 1. UL 790 - Tests for Fire Resistance of Roof Covering Materials.
  - 2. UL 997 - Wind Resistance of Prepared Roof Covering Materials.
  - 3. UL 2218 – Impact Resistance of Prepared Roof Covering Materials.

- C Asphalt Roofing Manufacturers Association (ARMA)
- D Sheet Metal and Air Conditioning Contractors National Association, 1nc. (SMACNA) - Architectural Sheet Metal Manual.
- E National Roofing Contractors Association (NRCA)
- F American Society of Civil Engineers (ASCE).
  - 1. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.

#### 1.03 DEFINITIONS

- A Roofing Terminology: Refer to ASTM D1079 and the glossary of the National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual for definitions of roofing terms related to this section.

#### 1.04 SUBMITTALS

- A Submit copies of GAF® product data sheets, detail drawings and samples for each type of roofing product.

#### 1.05 QUALITY ASSURANCE

- A Manufacturer Qualifications: Provide all primary roofing products, including shingles, underlayment, leak barrier, and ventilation, by a single manufacturer.
- B Installer Qualifications: Installer must be approved for installation of all roofing products to be installed under this section.

#### 1.06 REGULATORY REQUIREMENTS

- A Provide a roofing system achieving an Underwriters Laboratories (UL) Class A fire classification.
- B . Install all roofing products in accordance with all federal, state and local building codes.
- C All work shall be performed in a manner consistent with current OSHA guidelines.

#### 1.07 PREINSTALLATION MEETING

- A Timing: The meeting shall take place prior to the start of the roofing installation.
- B Attendees: Meeting to be called for by owners representative. Meeting's mandatory attendees shall include the certified contractor, the manufacturer's representative and the owners representative.
- C Topics: Review all pertinent requirements for the project, including but not limited to, scheduling, weather considerations, project duration, and requirements for the specified warranty.

#### 1.08 DELIVERY, STORAGE, AND HANDLING

- A Store all products in manufacturer's unopened, labeled packaging until they are ready for installation.
- B Store products in a covered, ventilated area, at temperature not more than 110 degrees F (43 degrees C); do not store near steam pipes, radiators, or in direct sunlight.
- C Store bundles on a flat, properly drained surface. Maximum stacking height shall not exceed GAF®'s recommendations. Store all rolls on end.
- D Store and dispose of solvent-based materials in accordance with all federal, state and local regulations.

#### 1.09 WEATHER CONDITIONS

- A Proceed with work only when existing and forecasted weather conditions will permit work to be performed in accordance with GAF®'s recommendations

#### 1.10 WARRANTY Provide to the owner a NDL warranty for:

1. GAF® Lifetime Shingles covering
  - a Manufacturing defects: 100% coverage for materials for 40 years with the first 20 years non - prorated.
2. Against algae discoloration for 10 years
3. Workmanship errors: 100% coverage for workmanship errors for 20 years.
4. Roof system NOT installed over an existing roof, all existing roof materials must be removed to the deck.
5. Full roof installations using the following GAF® products.
  - a You must use GAF® Roof Deck Protection.
  - b You must use eligible GAF® Leak Barrier in valleys and around dormers, sidewalls, firewalls, chimneys, plumbing vents, and skylights. In the North, leak barriers must be used at all eaves at least 24 inch inside warm wall.
  - c You must use GAF® pre-cut starter strip products (only those with factory applied adhesive) at the eaves. Note: To obtain bonus wind coverage, you must use GAF® pre cut starter strip products (with factory applied adhesive) at the eaves and rakes and you must install each shingle using 6 nails. For Miami Dade County Florida, no adhesive on rakes. You must cement the starter strip in and nail along the rake.
  - d Existing under deck ventilation systems to remain in place.
  - e New metal flashings must be installed. Metal drip edge must be used at eaves and at rake edges.
6. In addition to the requirements listed above, installer must register and pay for this warranty. Contractor to schedule a start-up and at least one interim and a final manufacturer inspection.

### PART I PRODUCTS

#### 1.01 MANUFACTURER

- A Acceptable Manufacturer: GAF®, 1 Campus Drive, Parsippany, NJ 07054. Tel: 1-973-628-3000 Or approved equal.

#### 1.02 SHINGLES

- A Self sealing, granule surfaced, asphalt shingle with a strong fiberglass reinforced Micro Weave core and StainGuard protection, which prevents pronounced discoloration from blue-green algae through formulation/unique blends of granules. Architectural laminate styling provides a wood shake appearance with a 5 5/8in. exposure. Features GAF's patented High Definition color blends and enhanced shadow effect. UL 790 Class A rated with UL 997 Wind Resistance Label; ASTM D 7158, Class H; ASTM D 3161, Type 1; ASTM D 3018, Type 1; ASTM D 3462; AC438 compliant; CSA 123.5-98; Dade County Approved, Florida Building Code Approved, Texas Dept of Insurance Approved, ICC Report Approval. **Timberline HD®** Lifetime High Definition Shingles, by GAF®.
1. Color: As selected by owner from manufacturers' full range.

1.03 HIP AND RIDGE SHINGLES

- A High profile self sealing hip and ridge cap shingle matching the color of selected roof shingle. Each bundle covers approx. 20 lineal feet (6.10m). **Timbertex**<sup>®</sup> Premium Ridge Cap Shingles, by GAF<sup>®</sup>.

1.04 STARTER STRIP

- A Self sealing starter shingle designed for premium roof shingles. Each bundle covers approx. 100 lineal feet (30.48m) for English and metric shingles or 50 lineal feet (15.24m) for oversized shingles. **WeatherBlocker**<sup>™</sup> Eave/Rake Starter Strip by GAF<sup>®</sup>.

1.05 LEAK BARRIER

- A Self-adhering, self-sealing, bituminous leak barrier surfaced with fine, skid-resistant granules. Approved by UL, Dade County, ICC, State of Florida and Texas Department of Insurance. Each roll contains approx. 150 sq ft (13.9 sq.m.), 36" X 50' (0.9m x 20.3m) or 200 sq ft (18.6 sq.m.), 36" X 66.7' (0.9m x 20.3m). **WeatherWatch**<sup>®</sup> Leak Barrier, by GAF<sup>®</sup>.

1.06 SHINGLE UNDERLAYMENT

- A #15 Roofing Underlayment: Water repellent breather type cellulose fiber building paper. Meets or exceeds the requirements of ASTM D-4869 Type I.

1.07 ROOFING CEMENT

- A Asphalt Plastic Roofing Cement meeting the requirements of ASTM D 4586, Type I or II.

1.08 NAILS

- A Standard round wire, zinc-coated steel or aluminum; 10 to 12 gauge, smooth, barbed or deformed shank, with heads 3/8 inch (9mm) to 7/16 inch (11mm) in diameter. Length must be sufficient to penetrate into solid wood at least 3/4 inch (19mm) or through plywood or oriented strand board by at least 1/8 inch (3.18mm).

1.09 METAL FLASHING

- A 0.032-inch (0.8mm) aluminum sheet, complying with ASTM B 209.

1.02 GUTTER

- A. Gutter system: shall be shop fabricated 24 G Kynar coated steel or .040 Kynar coated Aluminum (Contractor's choice). Expansion Joints shall be spaced a maximum of 50 feet on center and shall be comprised of two end caps with a slip splice over the joint. The gutter sections are to be 20 feet long, minimizing the number of joints between ends and expansion joints. Hidden top hanger straps are to be installed at 24 inches on center. All new gutters and leaders are to match the existing size, profile and routing as the existing system.
- B. Provide 5-year Contractor's **Watertightness and Workmanship Warranty on the gutter and leader system**

## PART III EXECUTION

### 3.01 EXAMINATION

- A Do not begin installation until the roof deck has been properly prepared.

### 3.02 PREPARATION

- A Remove all existing roofing down to the roof deck.
- B Verify that the deck is dry, sound, clean and smooth. It shall be free of any depressions, waves, and projections.
- C Cover with sheet metal, all holes over 1 inch (25mm) in diameter, cracks over 1/2 inch (12mm) in width, loose knots and excessively resinous areas.
- D Replace damaged deck with new materials to match existing type and thickness.
- E Clean deck surfaces thoroughly prior to installation of eaves protection membrane and underlayment.

### 3.02 INSTALLATION OF UNDERLAYMENTS

#### A General:

- 1. Install using methods recommended by GAF®, in accordance with local building codes. When local codes and application instructions are in conflict, the more stringent requirements shall take precedence.

#### B Eaves:

- 1. Install eaves edge metal flashing tight with fascia boards; lap joints 2 inches (51mm) and seal with plastic cement or high quality urethane sealant; nail at the top of the flange.
- 2. Install GAF® leak barrier up the slope from eaves edge a full 36 inches (914mm) or to at least 24 inches (610 mm) beyond the interior “warm wall”. Lap ends 6 inches (152mm) and bond.

#### C Valleys:

- 1. Install eaves protection membrane at least 36 (914mm) inches wide and centered on the valley. Lap ends 6 inches (152mm) and seal.
- 2. Install metal flashing over GAF® leak barrier before GAF® roof deck protection is installed; DO NOT nail through the flashing. Secure the flashing by nailing at 18 inches (457 mm) on center just beyond edge of flashing so that nail heads hold down the edge.

#### D Hips and Ridges:

- 1. Install GAF® leak barrier along entire lengths. If ridge vents are to be installed, position the GAF® leak barrier so that the ridge slots will not be covered.

#### E Roof Deck Protection:

- 1. Install one layer of GAF® roof deck protection over the entire area not protected by GAF® leak barrier at the eaves or valley. Install sheets horizontally so water sheds and nail in place.
- 2. On roofs sloped at more than 4:12, lap horizontal edges at least 2 inches (51mm) and at least 2 inches (51mm) over eaves protection membrane.
- 3. On roofs sloped between 2:12 and 4:12, lap horizontal edges at least 19 inches (482 mm) and at least 19 inches (482mm) over eaves protection membrane.
- 4. Lap ends at least 4 inches (102 mm). Stagger end laps of each layer at least 36 inches (914 mm).

5. Lap GAF® roof deck protection over GAF® leak barrier in valley at least 6 inches (152mm).

F Penetrations:

1. Vent pipes: Install a 24 inch (610 mm) square piece of eaves protection membrane lapping over roof deck underlayment; seal tightly to pipe.
2. Vertical walls: Install eaves protection membrane extending at least 6 inches (152mm) up the wall and 12 inches (305mm) on to the roof surface. Lap the membrane over the roof deck underlayment.
3. Skylights and roof hatches: Install eaves protection membrane from under the built-in counterflashing and 12 inches (305mm) on to the roof surface lapping over roof deck underlayment.
4. Chimneys: Install eaves protection membrane around entire chimney extending at least 6 inches (152mm) up the wall and 12 inches (305mm) on to the roof surface. Lap the membrane over the roof deck underlayment.
5. Rake Edges: Install metal edge flashing over eaves protection membrane and roof deck underlayment; set tight to rake boards; lap joints at least 2 inches (51mm) and seal with plastic cement; secure with nails.

### 3.02 INSTALLATION OF STARTER SHINGLES

A General:

1. Install in accordance with GAF®'s instructions and local building codes. When local codes and application instructions are in conflict, the more stringent requirements shall take precedence.
2. Refer to application instructions for the selected starter strip shingles.

B Placement and Nailing:

1. For maximum wind resistance along rakes & eaves, install any GAF® starter strip containing sealant or cement shingles to underlayment and each other in a 4" (102mm) width of asphalt plastic roof cement.
2. Place starter strip shingles 1/4" – 3/4" (6 – 19mm) over eave and rake edges to provide drip edge.
3. Nail approximately 1-1/2" – 3" (38 – 76mm) above the butt edge of the shingle.
4. Rake starter course should overlap eave edge starter strip at least 3" (76mm).

### 3.03 INSTALLATION OF SHINGLES

A General:

1. Install in accordance with GAF®'s instructions and local building codes. When local codes and application instructions are in conflict, the more stringent requirements shall take precedence.
2. Minimize breakage of shingles by avoiding dropping bundles on edge, by separating shingles carefully (not by "breaking" over ridge or bundles), and by taking extra precautions in temperatures below 40 degrees F (4 degrees C).
3. Handle carefully in hot weather to avoid scuffing the surfacing, or damaging the shingle edges.

B Placement and Nailing:

1. Secure with 4, 5, or 6 nails per shingle per GAF®'s application instructions or local codes.
2. Placement of nails varies based on the type of shingle specified. Consult the application instructions for the specified shingle for details.
3. Nails must be driven flush with the shingle surface. Do not overdrive or under drive the nails.
4. Shingle offset varies based on the type of shingle specified. Consult the application instructions for the specified shingle for details.

A Valleys

1. Install valleys using the "open valley" method:
  - a Snap diverging chalk lines on the metal flashing, starting at 3 inches (76mm) each side of top of valley, spreading at 1/8 inch per foot (9mm per meter) to the eaves.
  - b Run shingles to chalk line.
  - c Trim last shingle in each course to match the chalk line; do not trim shingles to less than 12 inches (305mm) wide.
  - d Apply a 2 inch (51mm) wide strip of plastic cement under ends of shingles, sealing them to the metal flashing.

B Penetrations

1. All Penetrations are to be flashed according to GAF®, ARMA and NRCA application instructions and construction details.

C Skylights and Roof Hatches

1. Consult the manufacturer of the skylight or roof hatch for specific installation recommendations.
2. Skylights and roof hatches shall be installed with pre-fabricated metal flashings specifically designed for the application of the unit.

3.02 PROTECTION

- A Protect installed products from foot traffic until completion of the project.
- B Any roof areas that are not completed by the end of the workday are to be protected from moisture and contaminants.

END OF SECTION